

WHAT IS CLAIMED IS:

1. A uniform pressing apparatus applicable to a nanoimprint lithographic process, comprising:

5 a housing having at least one opening and formed with a first flange extending in a first direction from periphery of the opening;

a first carrier unit for carrying an imprint mold, the first carrier unit being formed with a second flange extending in a second direction opposite to the first direction, allowing the second flange to be movably attached to the first flange to form surface contact between the first flange and the second flange such that the first carrier
10 unit moves along with movement of the housing;

a second carrier unit for carrying a substrate with a moldable layer formed thereon, wherein the moldable layer faces toward the imprint mold;

at least one uniform pressing unit comprising a closed flexible membrane and fluid filling the closed flexible membrane, the uniform pressing unit being mounted on a
15 path to transmit force required for imprinting; and

a driving unit for feeding and driving at least one of the housing and the second carrier unit, to allow the imprint mold to come into contact with the moldable layer, making the second flange separated from the first flange via the contact between the imprint mold and the moldable layer, and keeping the uniform pressing unit being
20 pressed to perform the nanoimprint lithographic process.

2. The uniform pressing apparatus of claim 1, wherein the driving unit is a power source for feeding and imprinting.

3. The uniform pressing apparatus of claim 1, wherein the driving unit is a combination of a power source for feeding and a power source for imprinting.

4. The uniform pressing apparatus of claim 1, wherein the driving unit is one selected from the group consisting of a hydraulic driven system, atmospheric driven system, and motor transmission system.
5. The uniform pressing apparatus of claim 1, wherein the surface contact formed between the first flange and the second flange is one selected from the group consisting of free surface contact, slanted surface contact, taper surface contact, and spherical surface contact.
6. The uniform pressing apparatus of claim 1, wherein the uniform pressing unit is mounted on the path to transmit force required for imprinting for one of the first and second carrier units.
7. The uniform pressing apparatus of claim 1, wherein the imprint mold and the substrate are fixed on the first and second carrier units respectively by means of vacuum suction force, mechanical force, and electromagnetic force.
8. The uniform pressing apparatus of claim 1, wherein at least one of the first and second carrier units is mounted on an alignment platform to achieve alignment during imprinting.
9. The uniform pressing apparatus of claim 1, further comprising a sensor unit for sensing pressure and force during imprinting, so as to provide loop control for the pressure and force.
10. A uniform pressing apparatus applicable to a nanoimprint lithographic process, comprising:
 - a housing having at least one opening and formed with a first flange extending in a first direction from periphery of the opening;

a first carrier unit for carrying a substrate with a moldable layer coated thereon, wherein the first carrier unit has a second flange extending in a second direction opposite to the first direction, allowing the second flange to be movably attached to the first flange to form surface contact between the first flange and the second flange such
5 that the first carrier unit moves along with movement of the housing;

a second carrier unit for carrying an imprint mold, wherein the mold faces toward the moldable layer;

at least one uniform pressing unit comprising a closed flexible membrane and fluid filling the closed flexible membrane, the uniform pressing unit being mounted on a
10 path to transmit force required for imprinting; and

a driving unit for feeding and driving one of the housing and the second carrier unit, to allow the imprint mold to come into contact with the moldable layer, making the second flange separated from the first flange via the contact between the imprint mold and the moldable layer, and keeping the uniform pressing unit being pressed to perform
15 the nanoimprint lithographic process.

11. The uniform pressing apparatus of claim 10, wherein the driving unit is a power source for feeding and imprinting.

12. The uniform pressing apparatus of claim 10, wherein the driving unit is a combination of a power source for feeding and a power source for imprinting.

20 13. The uniform pressing apparatus of claim 10, wherein the driving unit is one selected from the group consisting of a hydraulic driving system, atmospheric driving system and motor transmission system.

14. The uniform pressing apparatus of claim 10, wherein the surface contact formed between the first flange and the second flange is one selected from the group consisting

of free surface contact, slanted surface contact, taper surface contact, and spherical surface contact.

15. The uniform pressing apparatus of claim 10, wherein the uniform pressing unit is mounted on the path to transmit force required for imprinting for one of the first and
5 second carrier units.

16. The uniform pressing apparatus of claim 10, wherein the imprint mold and the substrate are fixed on the first and second carrier units respectively by means of vacuum suction force, mechanical force, and electromagnetic force.

17. The uniform pressing apparatus of claim 10, wherein at least one of the first and
10 second carrier units is mounted on an alignment platform to achieve alignment during imprinting.

18. The uniform pressing apparatus of claim 10, further comprising a sensor unit for sensing pressure and force during imprinting, so as to provide loop control for the pressure and force.

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